Name: Date: Period:

Unlimited Population Growth

|  |  |
| --- | --- |
| Time (Hours) | # Bacteria |
| 0 | 1 |
| 0.5 | 2 |
| 1.0 | 4 |
| 1.5 |  |
| 2.0 |  |
| 2.5 |  |
| 3.0 |  |
| 3.5 |  |
| 4.0 |  |
| 4.5 |  |
| 5.0 |  |
| 5.5 |  |
| 6.0 |  |
| 6.5 |  |
| 7.0 |  |
| 7.5 |  |
| 8.0 |  |
| 8.5 |  |
| 9.0 |  |
| 9.5 |  |
| 10.0 |  |

Suppose that the organisms in a population

have unlimited food, water, space, and other

resources. Also, suppose that the organisms

are not killed by other organisms or by disease.

With no limits on its growth, the population

would increase at its highest possible rate.

Bacteria are microscopic, unicellular

organisms that are often used to study

population growth. Most bacteria reproduce

through binary fission. Under ideal conditions,

bacteria can divide about every 30 minutes.

In the first half hour, one bacterium

produces two new bacteria. In the second

half hour, the two bacteria split into four.

In the third half hour, the four bacteria split

into eight. Every thirty minutes, the

population doubles!

Use the table on the right to answer the

following questions found below:

1. How many bacteria will there be in 10 hours? Fill in the blank rows to complete the table.
2. Is this realistic, whereby bacteria reproduce this quickly? Explain.

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following questions found below:

1. How many bacteria will there be in 10 hours? Fill in the blank rows to complete the table.
2. Is this realistic, whereby bacteria reproduce this quickly? Explain. **No, this is not realistic because there is unlimited resources, as well as no competition or disease.**